UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,268	01/18/2002	Sundeep Chandhoke	5150-58300	8985

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PHAM, CHRYSTINE

ART UNIT	PAPER NUMBER
2122	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/051,268	CHANDHOKE ET AL.
	Examiner	Art Unit
	Chrystine Pham	2122

-- The MAILING DATE of this communication appears n the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 12212004

DETAILED ACTION

1.   This action is responsive to application 10/051268 filed on January 18th 2002. Claims 1-45 are

presented for examination.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for

the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(e) the invention was described in (1) an application for patent, published under section 122(b), by another
filed in the United States before the invention by the applicant for patent or (2) a patent granted on an
application for patent by another filed in the United States before the invention by the applicant for patent,
except that an international application filed under the treaty defined in section 351(a) shall have the effects
for purposes of this subsection of an application filed in the United States only if the international application
designated the United States and was published under Article 21(2) of such treaty in the English language.*

3.   Claims 1-11, 18-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Limondin et al.

(US 6226783), hereinafter, *Limondin et al..*

Claim 1

Limondin et al. teach a computer-implemented method (e.g., see *object oriented method* col.2:59-

65) for creating a graphical (i.e., graphical data flow) program (e.g., see *machine vision application*

col.1:15-35; see *structuring a software step program, vision applications, computer programs, user*

interfaces col.1:55-67; see *programs, graphical user interface* col.2:1-3; see *user interface components,*

GUI col.2:15-22; col.2:59-65; see *STEPS, 100* FIG.2 & associated text; see FIG.6 & associated text; see

FIGS.8A-8C & associated text; see *step program, editor objects* col.7:35-44) based on a sequence (i.e.,

prototype) (e.g., see *series of operations, "steps"* Abstract; see *set of operations, steps, sequence*

col.1:15-35; see *list of operations* col.3:1-10; see *step inputs* col.5:8-13; see *execution order* col.5:20-35)

that includes motion control (e.g., see *WarpStep 122* FIG.2 & associated text; see *WARP 122* FIG.3 &

associated text), machine vision (e.g., see *VISION PROCESSOR BOARD* FIG.8A & associated text; see

machine vision application col.1:15-35; see *machine vision operations* col.1:55-67), and data (i.e.,

images, and measurement data) acquisition (DAQ) operations (i.e., functionality) (e.g., see *AcquireStep*

112 FIG.2 & associated text; see *ACQUIRE 112* FIG.3 & associated text; see *acquisition of an input image* col.1:15-35; see *feature extraction, features, size, area, length, distance* col.1:15-35;), the method comprising:

- o means for displaying a graphical user interface (GUI) that provides GUI access to a set of operations (e.g., see *user interfaces* col.1:55-67; see *step program, tree control window* col.4:50-55; see *iconic picture, individual step operation* col.5:35-45; see FIG.2 & associated text; see *editor objects, graphical view, step* col.6:59-65), wherein the set of operations includes one or more motion control operations (e.g., see *motion device* col.3:15-27), one or more machine vision (i.e., image analyzing) operations (e.g., see *accelerated image processing* col.2:40-50), and one or more DAQ operations (e.g., see *AcquireStep 706a, AcquireStep 706b* FIG.9 & associated text; see *image acquisition* col.2:40-50);

- o means for receiving user input to the graphical user interface specifying the sequence of operations (e.g., see *series of operations, "steps"* Abstract; see *set of operations, steps, sequence* col.1:15-35; see *list of operations* col.3:1-10; see *step inputs* col.5:8-13; see *operator, user interface control, step parameters, settings* col.6:59-col.7:3), wherein the specified sequence of operations includes at least one motion control operation (e.g., see *WarpStep 122* FIG.2 & associated text; see *WARP 122* FIG.3 & associated text), at least one machine vision operation (e.g., see *VISION PROCESSOR BOARD* FIG.8A & associated text; see *machine vision application* col.1:15-35; see *machine vision operations* col.1:55-67), and at least one DAQ operation (e.g., see *AcquireStep 112* FIG.2 & associated text; see *ACQUIRE 112* FIG.3 & associated text; see *acquisition of an input image* col.1:15-35; see *feature extraction, features, size, area, length, distance* col.1:15-35;);

- o means for storing the specified sequence of operations based on the user input (e.g., see *GUID, database* col.4:55-65; see *steps, data structure, map* col.6:34-40; see *step program, disk* col.10:5-17); and

o   means for programmatically generating a graphical program to implement the specified

sequence of operations (e.g., see *runtime, operations, steps* col.10:1-40).

Claim 2

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein said programmatically

generating the graphical program comprises automatically generating graphical code (e.g., see *graphical*

view col.6:59-65) in the graphical program without direct user input (e.g., see *user programs, computer*

language, programming language Abstract; see *drop-in functionality, language independent software*

components col.1:55-67; see *program, point and click graphical user interface* col.2:1-6; see *STEPS, 100*

FIG.2 & associated text; see *tree structure representation* col.4:25-31).

Claim 3

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein the graphical

program comprises a plurality of interconnected nodes (i.e., linking portions of graphical code wherein

each portion of graphical code implements one of the operations in the sequence) (e.g., see *software*

objects, steps, connection, inputs, outputs col.2:59-65) that visually indicate functionality of the graphical

program (e.g., see *STEPS, 100* FIG.2 & associated text; see *STEPS, 706a, 706b, 714* FIG.9 &

associated text; see *steps, datum objects* col.4:34-42; see *iconic picture, individual step operation*

col.5:35-45; see FIG.2 & associated text).

Claim 4

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach further comprising:

executing the graphical program to perform (i.e., affect an action which operation is operable to perform)

the sequence of operations (e.g., see *target processor, user program* Abstract; col.2:30-35; see

execution, program col.2:40-50; see *steps, operations* col.2:59-67; see *execution order* col.5:20-35;

col.10:4-10).

Claim 5

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein the graphical program includes a block diagram portion (e.g., see *software objects, steps, tree structure* col.4:25-31; see *STEPS 100* FIG.2 & associated text) and a user interface panel portion (e.g., see *step program*, *tree control window* col.4:50-55; see FIG.2 & associated text).

Claim 6

The rejection of base claim 1 is incorporated. Claim recites limitations, which have been addressed in claim 1, therefore, is rejected for the same reasons as cited in claim 1.

Claim 7

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein said programmatically generating the graphical program comprises including one or more nodes in the graphical program corresponding to the operations in the sequence (e.g., see *iconic picture, individual step operation* col.5:35-45; see FIG.2 & associated text; see *step code, object functions* col.10:9-17).

Claim 8

The rejection of base claim 1 is incorporated. Claim recites limitations, which have been addressed in claim 3, therefore, is rejected for the same reasons as cited in claim 3.

Claim 9

The rejection of base claim 8 is incorporated. *Limondin et al.* further teach wherein each portion of graphical code includes one or more graphical program nodes, wherein each node has one or more inputs or outputs (e.g., see *IN DATA 510, 512, 514, OUT DATA 234, 236, 238* FIG.5 & associated text;); wherein generating each portion of graphical code comprises connecting the node inputs and outputs together in order to implement the operation with which the portion of graphical code is associated (e.g.,

see *STEP OBJECT 200* FIG.5 & associated text; see *connection of inputs to outputs at each step*
col.2:59-65; see *inputs, outputs, operation, step* col.3:1-11).

Claim 10

The rejection of base claim 8 is incorporated. *Limondin et al.* further teach wherein linking a first
portion of graphical code to a second portion of graphical code comprises connecting an output of a node
in the first portion of graphical code to an input of a node in the second portion of graphical code (e.g.,
see *connection of inputs to outputs, between steps* col.2:59-65; see *results, output, inputs, one step,
other steps* col.4:42-50).

Claim 11

The rejection of base claim 8 is incorporated. *Limondin et al.* further teaches further comprising:
for each operation in the sequence, retrieving information associated with the operation from a database;
wherein generating the portion of graphical code that implements a particular operation utilizes the
database information retrieved for the particular operation (e.g., see *recipe database* col.2:1-6; see *GUID,
database* col.4:55-65).

Claim 18

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein said receiving
user input to the graphical user interface specifying a desired sequence of operations does not include
receiving user input specifying programming language code to implement the sequence of operations
(e.g., see *user programs, computer language, programming language* Abstract; see *drop-in functionality,
language independent software components* col.1:55-67; see *program, point and click graphical user
interface* col.2:1-6).

Claim 19

The rejection of base claim 1 is incorporated. *Limondin et al.* further teach wherein the sequence is operable to perform one or more (i.e., two) of:

- o   control motion of a device (e.g., see *motion device, moving camera* col.3:15-27);

- o   analyze acquired images (e.g., see *acquisition of an input image* col.1:15-35; see *accelerated image processing, image acquisition* col.2:40-50; see *camera images* col.4:15-22; see FIG.9 & associated text; see FIG.3 & associated text; see *acquisition of an image* col.5:60-65; see *camera images* col.7:64-67); and

- o   acquire measurement data (e.g., see *acquisition of an input image* col.1:15-35; see *feature extraction, features, size, area, length, distance* col.1:15-35; see *distance, features* col.4:15-22; see FIG.9 & associated text; see *camera images, distance between features* col.7:64-67; col.9:5-25).

Claims 20-23

The rejection of base claim 1 is incorporated. Claims recite limitations, which have been addressed in claims 1, 4, 18, 19, therefore, are rejected for the same reasons as cited in claims 1, 4, 18, 19.

Claim 24

The rejection of base claim 22 is incorporated. *Limondin et al.* further teach further comprising: for each operation to be configured, displaying a graphical panel including graphical user interface elements for setting properties of the operation and receiving user input to the graphical panel to set one or more properties of the operation (e.g., see *user interface components, GUI, setting of parameters* col.2:15-22; see *parameters, inputs, outputs* col.3:1-15; col.4:55-65).

Claims 25-27

Claims recite limitations, which have been addressed in claim 1, therefore, are rejected for the same reasons as cited in claim 1.

Claim 28

Claim recites a memory medium comprising program instructions executable (e.g., see *step program, disk* col.10:5-17) for performing the method addressed in claim 1, therefore, is rejected for the same reasons as cited in claim 1.

Claims 29-36

Claims recite limitations, which have been addressed in claims 1-4, 19, and 20, therefore, are rejected for the same reasons as cited in claims 1-4, 19, and 20.

Claim 37

Limondin et al. teach a system (e.g., see FIGS.8A-8C & associated text) for creating a graphical program based on a sequence that includes motion control, machine vision, and data acquisition (DAQ) operations (see claim 1), the system comprising:

o   a processor (e.g., see *target processor* Abstract);

o   a memory storing program instructions (e.g., see *step program, disk* col.10:5-17); and

o   a display device (e.g., see FIG.2 & associated text);

o   wherein the processor is operable to execute the program instructions stored in the memory to:

   o   display a graphical user interface (GUI) on the display device that provides access to a set of operations, wherein the set of operations includes one or more motion control operations, one or more machine vision operations, and one or more DAQ operations (see claim 1);

   o   receive user input to the graphical user interface specifying the sequence of operations, wherein the specified sequence of operations includes at least one motion control operation, at least one machine vision operation, and at least one DAQ operation (see claim 1);

   o   store the specified sequence of operations based on the user input (see claim 1); and

    o   programmatically generate a graphical program to implement the specified sequence of

operations (see claim 1).

Claim 38

The rejection of base claim 37 is incorporated. *Limondin et al.* further teach further comprising:

o   a motion control device (e.g., see *motion device, moving camera* col.3:15-27; see *Calibrate*

col.7:19-50);

o   an image acquisition device (e.g., see *acquisition of an input image* col.1:15-35); and

o   a data acquisition device (e.g., see *acquisition of an input image* col.1:15-35);

o   wherein the processor is operable to execute the graphical program to:

      o   control the motion control device to move an object (e.g., see *WarpStep 122* FIG.3 &

associated text; see *WarpPart, move the image* col.7:19-50);

      o   control the image acquisition device to acquire one or more images of the object; and

      o   control the data acquisition device to acquire measurement data of the object.

Claim 39

Claim recites limitations, which have been addressed in claims 1, and 37, therefore, is rejected

for the same reasons as cited in claims 1, and 37.

Claims 40-45

Claims recite limitations, which are subcombinations that have been addressed in claim 1,

therefore, are rejected for the same reasons as cited in claim 1.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable over *Limondin et al.* in view of McDonald et al. (US 5966532), hereinafter, *McDonald et al.*.

Claim 12

The rejection of base claim 1 is incorporated. *Limondin et al.* do not expressly disclose creating an association between the sequence and the graphical program, modifying the sequence to create a new sequence in response to user input after said creating the association, and modifying the graphical program according to the new sequence to create a new graphical program. However, *McDonald et al.* disclose:

- o   creating an association between the sequence and the graphical program (e.g., see *212* FIG.2 & associated text; see *212* FIG.4 & associated text; see *association, control, graphical code portion* col.5:10-25),

- o   modifying the sequence to create a new sequence in response to user input after said creating the association (e.g., see *226-230* FIG.3 & associated text; see *228* FIG.4 & associated text; col.5:20-45), and

- o   modifying the graphical program according to the new sequence to create a new graphical program (e.g., see *226-230* FIG.3 & associated text; see *230* FIG.4 & associated text).

Limondin et al. and *McDonald et al.* are analogous art because they are both directed to generating graphical program based on user inputs specifying data acquisition operations. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *McDonald et al.* into that of *Limondin et al.* for the inclusion of creating an association between the sequence and the graphical program, modifying the sequence, and modifying the graphical program to create new graphical program. And the motivation for doing so would have been to facilitate changes or updates to graphical code portions and accordingly, the associations between user inputs

(i.e., graphical icons representing corresponding operations) and the aforementioned graphical code portions, thus, providing an improved graphical programming environment where the user has ultimate programming control over the how the graphical programs are generated or defined based input sequences received through a GUI.

Claim 13

The rejection of base claim 12 is incorporated. *Limondin et al. McDonald et al.* further teach

o wherein said modifying the graphical program according to the new sequence uses the association between the sequence and the graphical program (e.g., see *224* FIG.3 & associated text; see *282, 284* FIG.6 & associated text; col.6:1-10);

o wherein the association remains between the new sequence and the new graphical program (e.g., see *288* FIG.6 & associated text). It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *McDonald et al.* into that of *Limondin et al.*. And the motivation for doing so would have been that which has been recited in claim 12.

Claim 14

The rejection of base claim 1 is incorporated. *McDonald et al.* further teach further comprising:

o creating an association between the sequence and the graphical program (see claim 12); and

o locking the association between the sequence and the graphical program, wherein said locking prevents user editing of the graphical program (e.g., see *locking prevents user editing* col.5:10-22). It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *McDonald et al.* into that of *Limondin et al.*. And the motivation for doing so would have been that which has been recited in claim 12.

Claim 15

The rejection of base claim 14 is incorporated. *McDonald et al.* further teach further comprising:

o   unlocking the association between the sequence and the graphical program in response to user

   input after said locking (e.g., see *262* FIG.5 & associated text);

o   directly changing the graphical program in response to user input after said unlocking (e.g., see

   266 FIG.5 & associated text). It would have been obvious to one of ordinary skill in the pertinent

   art at the time the invention was made to incorporate the teaching of *McDonald et al.* into that of

   Limondin et al.. And the motivation for doing so would have been that which has been recited in

   claim 12.

Claim 16

The rejection of base claim 15 is incorporated. *McDonald et al.* further teach wherein said

unlocking removes the association between the sequence and the graphical program (e.g., see *264* FIG.5

& associated text). It would have been obvious to one of ordinary skill in the pertinent art at the time the

invention was made to incorporate the teaching of *McDonald et al.* into that of *Limondin et al..* And the

motivation for doing so would have been that which has been recited in claim 12. It would have been

obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the

teaching of *McDonald et al.* into that of *Limondin et al..* And the motivation for doing so would have been

that which has been recited in claim 12.

Claim 17

The rejection of base claim 14 is incorporated. *McDonald et al.* further teach further comprising:

o   modifying the graphical program in response to user input after said generating the graphical

   program and after said creating the association between the sequence and the graphical program

   (e.g., col.5:10-62);

o   determining if an association exists between the sequence and the graphical program in

   response to said modifying the graphical program (e.g., see *224* FIG.3 & associated text; see

   wizard col.5:35-40); and

o   removing the association between the sequence and the graphical program in response to said

modifying (e.g., col.5:47-63; see *breaks the association* col.6:5-10). It would have been obvious

to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the

teaching of *McDonald et al.* into that of *Limondin et al.*. And the motivation for doing so would

have been that which has been recited in claim 12.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7.   Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Chrystine Pham whose telephone number is 571-212-3702. The examiner can

normally be reached on Mon-Fri, 8:30am-5pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q Dam can be reached on 571-272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system,

see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 21, 2004

TUAN DAM
SUPERVISORY PATENT EXAMINER